XTO ENERGY

SCANNED 10/19/11 ANC

RECEIVED
OCT 19 2011
DEC
Division of Water Quality
Wastewater Discharge Program

October 17, 2011

Alaska Dept. of Environmental Conservation
ATTN: Watershed Management Section
555 Cordova Street
Anchorage, Alaska 99501

FedEx Tracking Number: 7953 0206 0017

SUBJECT: ~~DISCHARGE MONITORING REPORTS, NPDES PERMIT NUMBERS~~
AKG-31-5003 EAST FORELANDS FACILITY 2339.48.003 ANC
AKG-31-5012 PLATFORM A
AKG-31-5013 PLATFORM C

Enclosed are the subject National Pollution Discharge Elimination System (NPDES) Discharge Monitoring Reports for the month of September 2011.

If there are any questions, please don't hesitate to contact me at (907) 776-8473.

Yours Truly,

Ryan Tunseth
EHS Manager

Enclosures: September 2011 DMR
2nd Period 2011 WET Test Results

cc: Director, Office of Water &Watersheds
U.S. Environmental Protection Agency
Region 10
1200 Sixth Avenue, OWW-130
Seattle, Washington 98101

Director, Office of Compliance and Enforcement
U.S. Environmental Protection Agency, Region 10
1200 Sixth Avenue, OCE-133
Seattle, Washington 98101

Nina Hutton
Mike Oconnor
Cook Inlet RCAC

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
DISCHARGE MONITORING REPORT (DMR)

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Wastewater Discharge Program

DMR Mailing Zip Code: 99611
MAJOR
(SUBR 02)
PRODUCED WATER AND SAND
External Outfall

(2-16)	(17-19)
AKG 31 5003	015
PERMIT NUMBER	DISHCARGE NUMBER

NAME: XTO ENERGY, INC
ADDRESS: 52260 WIK RD
KENAI, AK 99611
FACILITY: EAST FORELAND
LOCATION: 52260 WIK ROAD, KENAI AK 99611

ATTN: Ryan Tunseth, EHS Manager

MONITORING PERIOD

	YEAR	MONTH	DAY		YEAR	MONTH	DAY
FROM	2011	9	1	**TO**	2011	9	30
	(20-21)	(22-23)	(24-25)		(26-27)	(28-29)	(30-31)

No Discharge ☐

PARAMETER (32-37)			QUANTITY OR LOADING (46-53) (54-61) Average	Maximum	Units	QUALITY OR CONCENTRATION (38-45) Minimum	(46-53) Average	(54-61) Maximum	Units	NO EX. (62-63)	FREQUENCY OF ANALYSIS (64-68)	SAMPLE TYPE (69-70)
015 - Produced Water	FLOW	Sample Measurement	0.1420755	0.224994	MGD	***	***	***	***	0	Weekly	Estimate
		Permit Requirement	***	***		***	***	***		***	Weekly	Estimate
015 - Produced Water PRODUCED SAND		Sample Measurement	***	***	***	No discharge	No discharge	No discharge	***	0	***	***
		Permit Requirement	***	***		No discharge	No discharge	No discharge		***	***	***
015 - Produced Water OIL & GREASE		Sample Measurement	***	***	***	***	11.26	14	mg/l	0	Weekly	Grab
		Permit Requirement	***	***		***	29	42		***	Weekly	Grab
015 - Produced Water pH		Sample Measurement	***	***	***	7	***	7.76	SU	0	Weekly	Grab
		Permit Requirement				6		9		***	Weekly	Grab
015 - Produced Water TAH 39942 P 0		Sample Measurement	***	***	***	***	15.17	15.17	mg/l	0	Monthly	Grab
		Permit Requirement	***	***		***	24	32		***	Monthly	Grab
015 - Produced Water TAqH 50259 P 0		Sample Measurement	***	***	***	***	15.586	15.586	mg/l	0	Monthly	Grab
		Permit Requirement	***	***		***	Report	Report		***	Monthly	Grab
015 - Produced Water TOTAL AMMONIA 00610 1 0		Sample Measurement	***	***	***	5.1	5.1	5.1	mg/l	0	Quarterly	Grab
		Permit Requirement	***	***		Report	***	Report		***	Quarterly	Grab

NAME TITLE PRINCIPAL EXECUTIVE OFFICER			Telephone	Date (YR/MO/DAY)
Ryan Tunseth EHS Manager	I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons driectly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.	Signature	907 776-8473	10/17/2011

COMMENTS & EXPLANATION OF ANY VIOLATIONS: WET Testing sampling frequency is reduced to once/6 months [Section II.G.6.a - Permit # AKG-31-5000] 1st Period 2011 WET tests & Annual Rescreening [Section III.A.2.- Permit # AKG-31-5000] was taken in February-2011. Results were submitted with the (March 2011) DMR. 2nd Period WET test taken on 08.26.2011 - Results are submitted with the September 2011 DMR. Additionally, the sampling frequency for Copper, Manganese, Silver, Total Mercury, and Zinc is reduced in frequency from monthly to quarterly [Section II.G.6.a - Permit # AKG-31-5000] 3rd Quarter 2011 sample results are shown.

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)
DISCHARGE MONITORING REPORT (DMR)

DMR Mailing Zip Code: 99611

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PARAMETER (32-37)		QUANTITY OR LOADING (46-53) (54-61) Average	Maximum	Units	QUALITY OR CONCENTRATION (38-45) Minimum	(46-53) Average	(54-61) Maximum	Units	NO EX. (62-63)	FREQUENCY OF ANALYSIS (64-68)	SAMPLE TYPE (69-70)
015 - Produced Water COPPER 01119 P 0	Sample Measurement	***	***	***	***	2.6	2.6	ug/l	0	Quarterly	Grab
	Permit Requirement	***	***		***	90	90		***	Quarterly	Grab
015 - Produced Water MERCURY 71900 P 0	Sample Measurement	***	***	***	***	0.00	0	ug/l	0	Quarterly	Grab
	Permit Requirement	***	***		***	0.8	0.8		***	Quarterly	Grab
015 - Produced Water MANGANESE 71900 P 0	Sample Measurement	***	***	***	***	1.78	1.78	mg/l	0	Quarterly	Grab
	Permit Requirement	***	***		***	7.9	15.8		***	Quarterly	Grab
015 - Produced Water SILVER 01079 P 0	Sample Measurement	***	***	***	***	0.00	0	ug/l	0	Quarterly	Grab
	Permit Requirement	***	***		***	48	149		***	Quarterly	Grab
015 - Produced Water ZINC 01094 P 0	Sample Measurement	***	***	***	***	0.0319	0.0319	mg/l	0	Quarterly	Grab
	Permit Requirement	***	***		***	0.1	0.1		***	Quarterly	Grab
015 - Produced Water WET - *Mytilus galloprovincialis* (invertibrate) TT000 P 0	Sample Measurement	***	***	***	***	< 625	< 625	TUc	0	Semi Annual	Grab
	Permit Requirement	***	***		***	1200	2425		***	Semi Annual	Grab

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No Discharge ☐

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		Average	Maximum	Units	Minimum	Average	Maximum	Units			
015 - Produced Water WET - *Menidia beryllina* (vertebrate) TT000 P 0	Sample Measurement	***	***	***	***	< 625	< 625	TUc	0	Semi Annual	Grab
	Permit Requirement	***	***		***	1208	2425		***	Semi Annual	Grab
015 - Produced Water WET - *Echinoderm* TT000 P 0	Sample Measurement	***	***	***	***	< 625	< 625	TUc	0	Semi Annual	Grab
	Permit Requirement	***	***		***	1208	2425		***	Semi Annual	Grab

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TOXICITY TEST REPORT

TEST IDENTIFICATION

Test No.: 663-123

Title: Echinoderm sperm-fertilization test using static exposure to XTO Energy East Foreland effluent sample.

Protocol No.: NAS-XXX-SP/DE2, August 10, 1990 (Revision 3, 10-24-02). Based on: Method 1008.0, Sea Urchin, *Strongylocentrotus purpuratus,* and Sand Dollar, *Dendraster excentricus*, fertilization test, pp. 389-465, In: Short term methods for estimating the chronic toxicity of effluents and receiving waters to west coast marine and estuarine organisms, EPA/600/R-95/136.

STUDY MANAGEMENT

Study Sponsor: XTO Energy, 52260 Wik Rd., Kenai, AK 99611

Sponsor's Study Monitor: Mr. Ryan Tunseth

Testing Laboratory: Northwestern Aquatic Sciences, P.O. Box 1437, Newport, OR 97365.

Test Location: Newport laboratory

Laboratory's Study Personnel: G.A. Buhler, B.S., Proj. Mgr./Study Dir.; L.K. Nemeth, B.A., M.B.A., QA Officer; M.S. Redmond, M.S., Aq. Toxicol.; L.P. Sandoval, B.S., Tech.

Study Schedule:

Test Beginning: 8-27-11, 1440 hrs.

Test Ending: 8-27-11, 1520 hrs.

Disposition of Study Records: All raw data, reports and other study records are stored at Northwestern Aquatic Sciences, 3814 Yaquina Bay Rd., Newport, OR 97365.

Statement of Quality Assurance: The test data were reviewed by the Quality Assurance Unit to assure that the study was performed in accordance with the protocol and standard operating procedures. This report is an accurate reflection of the raw data.

TEST MATERIAL

Description: East Foreland effluent sample. Details follow:

NAS Sample No.	3844G
Collection Date	8-26-11
Receipt Date	8-27-11
Temperature (°C)	3.8
pH	7.2
Dissolved oxygen (mg/L)	3.7
Salinity (‰)	23.0

Treatments: Sample was briefly temperature-equilibrated prior to use.

Storage: Used date of receipt.

DILUTION WATER

Source: Yaquina Bay, OR

Date of Collection: 8-27-11

Water Quality: Salinity: 34.0 ‰, pH: 7.7

Pretreatment: Filtered to 0.40 µm, salinity-adjusted with MilliQ deionized water, and aerated.

BRINE USED FOR SALINITY CONTROL

None used.

TEST ORGANISMS

Species: Sand dollar, *Dendraster excentricus*

Age: Sperm were used immediately after seawater activation.

Source: Marinus Scientific, Inc., Newport Beach, CA.

Acclimation: Adults were received on 8-3-11 and held outside in trays of flowing seawater under ambient conditions until used for testing. Holding conditions prior to testing averaged: temperature, 19.0 ± 0.9°C; pH, 7.7 ± 0.1; salinity, 33.1 ± 0.8 ‰; and dissolved oxygen, 6.8 ± 0.6 mg/L.
Source of Gametes: 2 females and 3 males.

TEST PROCEDURES AND CONDITIONS

Test Chambers: 16 mm x 100 mm unwashed new borosilicate disposable glass test tubes containing 5 ml of test solution.
Test Concentrations: 0.16, 0.08, 0.04, 0.02, 0.01 and 0% (control).
Brine Control: None used
Replicates/Treatment: 4
Eggs per Test Container: 1000
Sperm:Egg Ratio: 500:1
Sperm Exposure Time: 20 minutes
Time for Fertilization: 20 minutes
Volume of Subsamples Taken for Counting: 1 ml
Water Volume Changes: None (non-renewal static test).
Aeration: None
Feeding: None
Effects Criteria: The effect criterion was absence of fertilization as indicated by lack of a fertilization membrane in the preserved eggs.
Water Quality and Other Test Conditions: Temperature, 12.7°C; pH, 7.8 ± 0.0; salinity, 34.0 ± 0.0 ‰; and dissolved oxygen, 8.1 ± 0.1 mg/L. Photoperiod: NA

DATA ANALYSIS METHODS

The proportion of fertilized eggs was calculated for each treatment replicate from the raw data and the means were obtained for each treatment level. The latter were then corrected for control response using Abbott's formula. The EC50 was calculated, where data permitted, using either the Maximum-Likelihood Probit or the Trimmed Spearman-Karber methods. An IC25 was calculated by linear interpolation with bootstrapping. NOEC and LOEC values were computed using either Dunnett's test, T-test with Bonferroni's adjustment, Steel's Many-One Rank Test, or Wilcoxon Rank Sum Test with Bonferroni Adjustment. The appropriate test was selected after evaluating the data for normality and homogeneity of variance. An arcsine square root (angular) transformation was performed on the data prior to statistical analysis. The statistical software employed for these calculations was CETIS, v.1.7.0revW, Tidepool Scientific Software. Toxic units (TU_c) were computed as 100/NOEC, 100/EC50, or 100/IC25.

PROTOCOL DEVIATIONS

None.

REFERENCE TOXICANT TEST

The routine reference toxicant test is a standard multi-concentration toxicity test using sodium azide to evaluate the performance of the test organisms used in the effluent toxicity test. The performance is evaluated by comparing the results of this test with historical results obtained at the laboratory. A summary of the reference toxicant test result is given below. The reference toxicant test raw data are found in Appendix III.

Test No.: 999-2929
Reference Toxicant and Source: Sodium azide (Sigma Lot No. 68F-0834), 1.0 mg/mL stock prepared on 8-27-11.
Test Date: 8-27-11
Dilution Water Used: Yaquina Bay, OR, Salinity 34.0 ‰, pH 7.7.
Results: EC50, 119 mg/L; NOEC, 78 mg/L; and IC25, 91.4 mg/L. The EC50 results were within the laboratory's control chart limits (97.1 to 233 mg/L).

TEST RESULTS

A detailed tabulation of the test results is given in Table 1. The biological effects, given as the NOEC, LOEC, and EC50 and IC25 for inhibition of fertilization are shown below.

NOEC (%)	0.16 (TU_c = 625)
LOEC (%)	>0.16 (TU_c < 625)
EC50 (%)	>0.16 (TU_c < 625)
(95% C.I.)	---
Method of Calculation	By Data Inspection
IC25 (%)	>0.16 (TU_c < 625)
(95% C.I.)	---
Method of Calculation	Linear Interpolation

DISCUSSION/CONCLUSIONS

The NOEC in this study was 0.16 % effluent, and the EC50 and IC25 for fertilization were both >0.16 %.

Table 2 shows the results of the egg-effluent control and egg-control tests. No fertilization response was observed in the egg only, no-sperm control or in the egg-effluent, no-sperm control.

STUDY APPROVAL

Project Manager/Study Director — Date: 10-4-11

Quality Assurance Unit — Date: 10-4-11

Assistant Laboratory Director — Date: 9/26/11

Table 1. Fertilization response of Sand dollar, *Dendraster excentricus*, sperm exposed to East Foreland effluent sample.

		Eggs Counted		Proportion Fertilized	
Effluent Conc. (%)	Replicate	Fertilized	Unfertilized		Mean**
0.16	1	88	12	0.880	
	2	90	10	0.900	
	3	95	5	0.950	
	4	95	5	0.950	0.920
0.08	1	93	7	0.930	
	2	91	9	0.910	
	3	93	7	0.930	
	4	98	2	0.980	0.938
0.04	1	90	10	0.900	
	2	94	6	0.940	
	3	91	9	0.910	
	4	92	8	0.920	0.918
0.02	1	93	7	0.930	
	2	92	8	0.920	
	3	95	5	0.950	
	4	96	4	0.960	0.940
0.01	1	91	9	0.910	
	2	93	7	0.930	
	3	92	8	0.920	
	4	97	3	0.970	0.933
Control	1	94	6	0.940	
	2	90	10	0.900	
	3	94	6	0.940	
	4	93	7	0.930	0.928

** Treatment mean significantly ($P<0.05$) different from the control mean

Table 2. Response of egg-effluent controls (no sperm) and egg-controls (no sperm, dilution water only).

		Eggs Counted		Proportion Fertilized	
Description	Replicate	Fertilized	Unfertilized		Mean
Egg-effluent control	1	0	100	0.000	
	2	0	100	0.000	
	3	0	100	0.000	
	4	0	100	0.000	0.000
Egg control	1	0	100	0.000	
	2	0	100	0.000	
	3	0	100	0.000	
	4	0	100	0.000	0.000